

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP03/09213

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl' C01B31/02, C01B31/12, B09B3/00, C10B53/00, C10B1/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl' C01B31/02, C01B31/12, B09B3/00, C10B53/00, C10B1/10

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 Jitsuyo Shinan Koho 1922-1996 Jitsuyo Shinan Toroku Koho 1996-2003
 Kokai Jitsuyo Shinan Koho 1971-2003 Toroku Jitsuyo Shinan Koho 1994-2003

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 9-22712 A (Kazuteru SHINOHARA), 02 September, 1997 (02.09.97), Full text (Family: none)	1-18
Y	JP 51-36287 A (Kobe Steel, Ltd.), 27 March, 1976 (27.03.76), Full text (Family: none)	1-18
Y	JP 11-37432 A (Tsukishima Kikai Co., Ltd.), 12 February, 1999 (12.02.99), Par. No. [0009]; Fig. 2 (Family: none)	1-18

Further documents are listed in the continuation of Box C. See patent family annex.

"A"	Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E"	earlier document but published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search 07 November, 2003 (07.11.03)	Date of mailing of the international search report 18 November, 2003 (18.11.03)
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Name and mailing address of the ISA/ Japanese Patent Office	Authorized officer
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INTERNATIONAL SEARCH REPORT

International application No. PCT/JP03/09213

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 57-15838 A (Central Glass Co., Ltd.), 27 January, 1982 (27.01.82), Claims; page 1, right column, lines 4 to 5; Fig. 1 (Family: none)	1-18
Y	JP 48-34366 A (Masato TANAKA), 18 May, 1973 (18.05.73), Page 2, upper right column, line 10 to lower left column, line 7; Fig. 1 (Family: none)	1-18
Y	JP 7-70613 A (Nippon Steel Corp.), 14 March, 1995 (14.03.95), Claim 3; Par. Nos. [0008], [0010]; Fig. 1 (Family: none)	1-4, 7-18
Y	JP 8-278082 A (Toyoda Automatic Loom Works, Ltd.), 22 October, 1996 (22.10.96), Par. Nos. [0021] to [0023] (Family: none)	3, 4
Y	JP 63-176989 A (Daido Netsu Kagaku Kabushiki Kaisha), 21 July, 1988 (21.07.88), Claims (Family: none)	3, 4
Y	JP 11-76977 A (Yamatomi Sangyo Kabushiki Kaisha), 23 March, 1999 (23.03.99), Par. Nos. [0011], [0025]; Figs. 1, 3 (Family: none)	7, 10-12
Y	JP 2003-64372 A (Noriyuki YAMAZAKI), 05 March, 2003 (05.03.03), Claims; Figs. 1 to 5 (Family: none)	9, 17
Y	JP 2003-34518 A (Noriyuki YAMAZAKI), 07 February, 2003 (07.02.03), Claim 1 (Family: none)	16, 17